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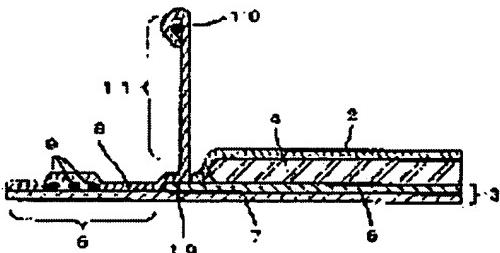
(21)Application number : 10-211055 (71)Applicant : OJI PAPER CO LTD  
 (22)Date of filing : 27.07.1998 (72)Inventor : OGAWA SHUICHIRO  
 IIJIMA SHIGEMI  
 ASAII KINYA

## (54) DISPOSABLE DIAPER

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To provide a disposable diaper provided with excellent texture for preventing the leakage of excreta and preventing sweatiness.

**SOLUTION:** This disposable diaper is provided with a liquid permeable front surface sheet 2, a liquid impermeable back surface sheet 3, an absorbent 4 arranged between both sheets 2 and 3 and a side flap 5 extended from the side edge of the absorbent 4 to an outer side. The back surface sheet 3 is formed of an outer layer sheet 7 composed of non-woven fabric and an inner layer sheet 6 composed of an impermeable sheet laminated on the inner surface and the inner layer sheet 6 is provided with an area where the absorbent 4 is arranged and arranged only near the absorbent side edge. A leg periphery flexible elastic body 9 is arranged between the outer layer sheet 7 and a side sheet 8 for forming the side flap 5, a flexible elastic body 10 is arranged at the side edge on an absorbent side of the side sheet 8, both end parts in a longitudinal direction are fixed and a stereoscopic gather 11 erected upwards with the inner layer sheet 6 as an erecting point is formed.



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CLAIMS

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[Claim(s)]

[Claim 1] In the usage \*\*\*\* diaper which has the surface sheet of liquid permeability, the rear-face sheet of liquid impermeability, the absorber arranged among both [ these ] sheets, and the side flap which extends outside from the side edge of an absorber Said rear-face sheet is formed with the inner layer sheet which consists of an outer layer sheet which consists of a nonwoven fabric, and an impermeability sheet by which the laminating was carried out to the inside. And this inner layer sheet is arranged only near this absorber side edge including the field where said absorber is arranged. This outer layer sheet has extended outside from the side edge of this inner layer sheet including the field of this inner layer sheet. Said side flap It is formed of the sideseat which consists of a nonwoven fabric arranged on said outer layer sheet part which extends outside from the side edge of said absorber, and this outer layer sheet part. Between this outer layer sheet that forms this side flap, and this sideseat, the circumference of foot flexible elastic body is arranged in the state of expanding. And said sideseat While applying on said absorber, and being arranged from the side edge of said outer layer sheet, and arranging a flexible elastic body in the state of expanding at the side edge by the side of this absorber of this sideseat and fixing the longitudinal direction both ends The usage \*\*\*\* diaper characterized by forming the solid gathers which stand up up by making said inner layer sheet top into a standing up point.

[Claim 2] Said surface sheet is a usage \*\*\*\* diaper according to claim 1 which the side edge field has estranged from said absorber front face, and this side edge is being fixed to the side-attachment-wall inside of said solid gathers, and is characterized by forming liquid induction dead air space between these solid gathers, this surface sheet, and this absorber by this.

[Claim 3] The usage \*\*\*\* diaper according to claim 1 or 2 characterized by forming the standing up point of said solid gathers on an absorber.

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## DETAILED DESCRIPTION

## [Detailed Description of the Invention]

[0001]

[Field of the Invention] It is the usage \*\*\*\* diaper offered as a diaper for infants or incontinentia persons, and it uses and this invention is the thing about a \*\*\*\* diaper which gave permeability in more detail and made the touch at the time of wearing good.

[0002]

[Description of the Prior Art] Conventionally, the technique which constitutes a usage \*\*\*\* diaper by the surface sheet, the rear-face sheet, the absorber arranged among both [ these ] sheets, and the side flap is well-known. However, if plastic film is used for a rear-face sheet, a film will \*\*\*\*\* and displeasure will be given to a wearer. When there is no permeability in a rear-face sheet, it will be steamed with the moisture by a wearer's sweat and excrement. Moreover, in order to give permeability to a rear-face sheet, when a nonwoven fabric etc. is used, waterproofness will be inadequate and it will leak. If it is torn, without reinforcement being lacking if the plastic film which has permeability is used, therefore a film is thickened and reinforcement is maintained, I will \*\*\*\*\* and displeasure will be given to a user. Furthermore, if the sheet which pinches a circumference of foot flexible elastic body is thick or the laminating of many layers is carried out, the elasticity is not fully demonstrated, but the fit nature to a wearer becomes inadequate, while a disposable diaper wears, it will slip down, or excrement will leak.

[0003] Although the rear-face sheet which joined plastic film to one side of a nonwoven fabric is proposed by JP,59-149903,U and improvement in a diaper appearance was aimed at with the rear-face sheet, it did not have permeability and was not enough.

[0004] Moreover, in JP,62-191805,U, it applies to a side edge edge from the inferior surface of tongue of an absorber, and covers with an impermeability sheet, and the wrap disposable diaper is indicated with the permeability sheet in the top face and inferior surface of tongue of this waterproofing absorber. Although permeability was given between vertical sides, waterproofness and the fit nature to a wearer were inadequate.

[0005]

[Problem(s) to be Solved by the Invention] This invention conquers the trouble which the above-mentioned conventional usage \*\*\*\* diaper has, prevents the leakage of excrement, prevents \*\*\*\*, and does not give the displeasure which a rear-face sheet was not torn and \*\*\*\*\* (ed), but aims at offering the usage \*\*\*\* diaper which has sufficient fit nature to a wearer, and has the good touch.

[0006]

[Means for Solving the Problem] In the usage \*\*\*\* diaper which has the absorber with which this invention has been arranged between the surface sheet of liquid permeability, the rear-face sheet of liquid impermeability, and both [ these ] sheets, and the side flap which extends outside from the side edge of an absorber Said rear-face sheet is formed with the inner layer sheet which consists of an outer layer sheet which consists of a nonwoven fabric, and an impermeability sheet by which the laminating was carried out to the inside. And this inner layer sheet is arranged only near this absorber side edge including the field where said absorber is arranged. This outer layer sheet has extended outside from the side edge of this inner layer sheet including the field of this inner layer sheet. Said side flap It is formed of the sideseat which consists of a nonwoven fabric arranged on said outer layer sheet part which extends outside from the side edge of said absorber, and this outer layer sheet part. Between this outer layer sheet that forms this side flap, and this sideseat, the circumference of foot flexible elastic body is arranged in the state of expanding. And said sideseat While applying on said absorber, and being arranged from the side edge of said outer layer sheet, and arranging a flexible elastic body in the state of expanding at the side edge by the side of this absorber of this sideseat and fixing the longitudinal direction both ends It is related with the usage \*\*\*\* diaper characterized by forming the solid gathers which stand up by making said inner layer sheet top into a standing up point.

[0007] Moreover, the side edge field has estranged said surface sheet from said absorber front face, and this side edge is being fixed to the side-attachment-wall inside of said solid gathers, and, thereby, this invention relates to these solid gathers, this surface sheet, and the usage \*\*\*\* diaper characterized by forming liquid induction dead air space between these absorbers.

[0008] Furthermore, this invention relates to the usage \*\*\*\* diaper characterized by forming the standing up point of said solid gathers on an absorber.

[0009]

[Embodiment of the Invention] The outer layer sheet with which, as for the usage \*\*\*\* diaper of this invention, a rear-face sheet consists of a nonwoven fabric, Carry out the laminating of the inner layer sheet which consists of an impermeability sheet, it is formed, and the inner layer sheet is arranged only to the field to which the absorber is arranged. The outer layer sheet has extended outside from the side edge of a inner layer sheet, and the sideseat which consists of a nonwoven fabric is arranged on this outer layer sheet part that extended. Between an outer layer sheet and a sideseat, a circumference of foot flexible elastic body is arranged, and the side flap is formed. Furthermore, while being arranged from the side edge of an outer layer sheet, applying it on an absorber, arranging a flexible elastic body in the state of expanding at the side edge by the side of the absorber of a sideseat and fixing the longitudinal direction both ends, the solid gathers which made the inner layer sheet top the standing up point are formed.

[0010] Since the external surface (outer layer sheet which is the lateral surface of a rear-face sheet) of a diaper is a nonwoven fabric, such a usage \*\*\*\* diaper of this invention of a configuration has the softly good touch in the person who lifted infants in his arms, or the part to which the wearer itself contacts the thigh section. And since the absorber is surrounded by the inner layer sheet and solid gathers of liquid impermeability in the side face from the inferior surface of tongue, the leakage of excrement is prevented. In addition, it is prevented that

permeability is given by the outer layer sheet and sideseat which consist of a nonwoven fabric, and the interior of a diaper is steamed. Furthermore, since the circumference of foot flexible elastic body is pinched by the outer layer sheet and sideseat of a nonwoven fabric, elasticity can be demonstrated effectively and it has good fit nature.

[0011] Moreover, as for the usage \*\*\*\* diaper of this invention, in the above-mentioned usage \*\*\*\* diaper, it is desirable by making the side edge field of a surface sheet estrange from an absorber, and fixing to the side-attachment-wall inside of solid gathers to form liquid induction dead air space between solid gathers, a surface sheet, and an absorber.

[0012] When a wearer excretes liquid excrement by making it such a configuration, it cannot catch up with the rate of absorption of an absorber, but the excrement which is going to overflow is incorporated and held in liquid induction dead air space, and since it is spread and absorbed subsequently to an absorber, the leakage prevention effectiveness of excrement can be raised.

[0013] In this invention, a rear-face sheet carries out the laminating of an outer layer sheet and the inner layer sheet, and is formed. A inner layer sheet is formed in a nonwoven fabric, and the approach and detachability film front face which are made to paste, fabricating a inner layer sheet by the melting extrusion method as the laminating approach, and after supplying an outer layer sheet at the time of the shape of semi-hardening, making it stuck by pressure and making it harden completely, the approach of removing an exfoliation film, the method of pasting up the hardened inner layer sheet on an outer layer sheet with adhesives, the method of pasting up a inner layer sheet and an outer layer sheet by thermocompression bonding, etc. can be used. Moreover, the rear-face sheet of this invention is arranged only near [ where a inner layer sheet includes the field where the absorber is arranged ] the absorber side edge, and the laminating of the outer layer sheet is carried out so that it may extend outside from the side edge of a inner layer sheet.

[0014] The nonwoven fabric which consists of a synthetic fiber which could use, without being restricted especially when it was the nonwoven fabric usually used for hygienic goods as an outer layer sheet, for example, used thermoplastics, such as polyethylene, polypropylene, and polyester, as the raw material can be mentioned. Especially the manufacturing method of this nonwoven fabric is not restricted, either, for example, manufacturing methods, such as dry process, a wet method, the span ball-race method, the span bond method, and the melt BURON fabricating method, are used. Moreover, as for an outer layer sheet, what has water repellence is more desirable. Since an outer layer sheet is the external surface of the usage \*\*\*\* diaper of this invention, the person who lifted a wearer and infants (wearer) for the soft touch of a nonwoven fabric in his arms can be provided with it.

[0015] Liquid impermeable films, such as polyethylene, etc. can be used as a inner layer sheet. Moreover, if the permeability of the polyethylene sheet which prepared the fine hole for giving moisture permeability, the sheet which added and extended the filler to thermoplastics, and the sheet of liquid impermeability are used, since \*\*\*\* can be prevented, it is desirable.

[0016] As a surface sheet of this invention, sheets of liquid permeability, such as polyethylene and a nonwoven fabric which consists of polypropylene, polyester, or a synthetic fiber that used other thermoplastics as the raw material, can be used.

[0017] It is desirable that it is what can use the nonwoven fabric which consists of a synthetic fiber which used thermoplastics, such as polyethylene, polypropylene, and polyester, as the raw material as a sideseat of this invention, and has water repellence. Without piling up in the interior of a \*\*\*\* diaper using the moisture under wear, since a nonwoven fabric is a sheet which has good permeability, \*\*\*\* can be prevented and a wearer is provided with the touch with a still softer nonwoven fabric.

[0018] Moreover, from the side edge of an outer layer sheet, it applies on an absorber, and is arranged, a flexible elastic body is arranged in the state of expanding at the side edge by the side of an absorber, the longitudinal direction both ends are fixed, and the sideseat of this invention forms the solid gathers which stand up by making a part for jointing on a inner layer sheet into a standing up point.

Furthermore, in this invention, the standing up point of solid gathers can also be formed on an absorber (the surface sheet top on an absorber is also included) not only a inner layer sheet top but if needed.

[0019] The side flap of this invention is formed by carrying out the laminating of the sideseat to an outer layer sheet, and the circumference elastic body of a foot is arranged among both [ these ] sheets. It pastes up with the adhesives given the shape of a fog, reticulated, the shape of a dot, in the shape of a spiral, etc., and both sheets are constituted so that the permeability of this part may not be checked.

[0020] The flexible elastic body used for the usual usage \*\*\*\* diapers, such as urethane yarn and yarn rubber, as a flexible elastic body used in this invention can be used as it is, and adhesion immobilization of these flexible elastic bodies is carried out to a predetermined part with hot melt adhesive etc. in the state of expanding, respectively.

[0021] Moreover, the usage \*\*\*\* diaper of this invention can form liquid induction dead air space [ near the absorber side edge ]. Liquid induction dead air space makes the side edge field of a surface sheet estrange from an absorber, and is formed by fixing the side edge to the side-attachment-wall inside of solid gathers. Rate of absorption of an absorber cannot be caught up with this dead air space, but the leakage of excrement can be prevented by incorporating and holding the excrement which is going to overflow.

[0022] The absorber used by this invention is not especially restricted, although it has the liquid holdout which consists of a curdy pulp and superabsorbency high polymer, a synthetic fiber, a thermofusion component, adhesives, a hydrophilic sheet, etc. The configurations of said absorber should just be configurations in which there is especially no limit and length from the crotch to the cuff is fitted, such as a sandglass mold, a rectangle, and a T character mold. Moreover, an absorber may be compressed if needed.

[0023] The configuration of an absorber may prepare the layer which 1 layer structure which uses curdy pulp as a principal component is sufficient as, and mixed the superabsorbency high polymer in the lower part of this layer at homogeneity at curdy pulp, and may sprinkle a superabsorbency high polymer in the shape of a layer between two-layer [ this ] further. Still a lot of urine can be absorbed and held by making an absorber into multilayer structure.

[0024] As curdy pulp, what made the sheet of chemical pulp, mechanical pulp, or chemical machinery pulp the shape of cotton with the grinder is mentioned. As a pulp raw material, non-wood pulp, such as wood pulp of a needle-leaf tree and a broad-leaved tree and hemp, is also used. the absorber which makes a pulp raw material the purpose -- an independent or multiple thing -- mixing -- a laminating may be carried out and you may use.

[0025] Moreover, with curdy pulp, a synthetic fiber, a thermofusion component, adhesives, etc. may be blended, and these may be blended three to 60% of the weight, and may carry out thermocompression bonding. Among these, the bicomponent fiber which consists of two or more components, such as polyester besides being polypropylene, polyethylene, polyester, the poly vinylidene, acrylic resin, Nylon, etc., polypropylene, and polyethylene, as a thermofusion component is illustrated.

[0026] As a superabsorbency polymeric material, although the thing of a starch system, a cellulose system, and a synthetic polymer system etc. is illustrated, the urine, the body fluid, or water of 20 times or more of a self-weight is absorbed, and the thing of a sodium polyacrylate system is the most desirable from the point of absorptivity ability. A superabsorbency high polymer may be sprinkled in the shape of a layer, and may be blended with homogeneity or an ununiformity in curdy pulp.

[0027] Moreover, the diffusion layer for diffusing excrement early more between a surface sheet and an absorber if needed may be used for the usage \*\*\*\* diaper of this invention. The nonwoven fabric of liquid permeability which consists of polyester, polypropylene, etc., textile fabrics, porous plastic film, porous form, reticulated form, etc. can be used for this diffusion layer. Although there is especially no limit in the manufacture approach and configuration, what is necessary is just the material which can shift to an absorber, without making the urine and excrement which passed the surface sheet remain quickly.

[0028]

[Example] Although an example is given to below and the usage \*\*\*\* diaper of this invention is more concretely explained to it, of course, this invention is not limited by these. Drawing 1 is the top view of the usage \*\*\*\* diaper of this invention. In drawing 1, the sideseat 8 which forms the side flap 5, the surface sheet 2 of liquid permeability being arranged to the longitudinal direction central field, and covering the usage \*\*\*\* diaper 1 over the edges on both sides of the surface sheet 2 from the edges on both sides of a diaper is arranged, further, the flexible elastic body 10 is arranged at the side edge, and the solid gathers 11 are formed in the part located on the surface sheet 2 of a sideseat 8. Moreover, in the length-from-the-crotch-to-the-cuff field of the side flap 5, the circumference of foot flexible elastic body 9 is arranged.

[0029] moreover, in the field which is equivalent to circumference opening of a foot in the side flap 5 of the usage \*\*\*\* diaper 1 In the field which the scooping out section 12 for forming circumference opening of a foot is formed, and is equivalent to circumference opening of the waist of the edge section of the usage \*\*\*\* diaper 1 the circumference of the waist flexible elastic body 13 arranges -- having -- \*\*\*\* -- further -- later self -- time -- 14 -- the FASUNINGU tape 15 of a pair is arranged at the longitudinal direction side edge of the edge section, and the reinforcing tape 17 is arranged in the central field near the edge section of 16 at the past time. in addition, the FASUNINGU tape 15 -- minding -- later self -- time -- 14 -- past time -- 16 -- joining -- things -- circumference opening of the waist, and a pair -- circumference opening of a foot is formed.

[0030] Drawing 2 is the cross-sectional view showing the condition shown in drawing 1 of having used and having cut the \*\*\*\* diaper 1 along with the X-X' line perpendicular to a longitudinal direction. In drawing 2, the usage \*\*\*\* diaper 1 is formed from the surface sheet 2 of liquid permeability, the rear-face sheet 3 of liquid impermeability, the absorber 4 arranged among both [ these ] sheets, the side flap 5 which extends outside from the side edge of an absorber 4, and the solid gathers 11 which stand up upwards from the side edge of an absorber 4. In this case, the rear-face sheet 3 is formed from the outer layer sheet 7 which consists of a inner layer sheet 6 which consists of a sheet of impermeability, and a nonwoven fabric, the inner layer sheet 6 has been arranged only [ near the absorber side edge ] from the absorber 4, and the outer layer sheet 7 has extended outside further from the inner layer sheet 6. moreover, in the top face of outer layer sheet 7 part which extends outside from an absorber side edge Apply on an absorber 4 from the side edge, and the sideseat 8 is arranged. The side flap 5 is formed in the part to which the laminating of both the sheets was carried out, and the circumference elastic body 9 of a foot is arranged among both sheets. Furthermore, the flexible elastic body 10 is arranged in the state of expanding at the side edge by the side of the absorber 4 of a sideseat 8, and the solid gathers 11 which stand up up by making the inner layer sheet 6 top into the standing up point 19 are formed.

[0031] Drawing 3 is a cross-sectional view where drawing 2 differs and in which showing the condition shown in drawing 1 of having used and having cut the \*\*\*\* diaper 1 along with the X-X' line perpendicular to a longitudinal direction. In drawing 3, the side edge field estranges the surface sheet 2 from absorber 4 front face, it is fixed to the side-attachment-wall inside of the solid gathers 11, and, thereby, the liquid induction dead air space 18 is formed between the solid gathers 11, the surface sheet 2, and the absorber 4.

[0032] In addition, in drawing 2 and drawing 3, although the example by which the standing up point of solid gathers is all formed on the inner layer sheet was shown, in this invention, it is also possible to form a standing up point on an absorber (for the surface sheet top on an absorber to also be included) if needed.

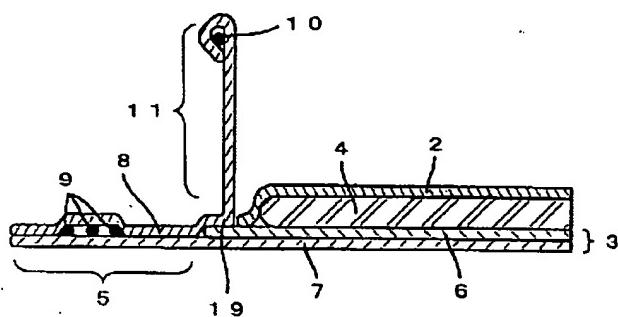
[0033]

[Effect of the Invention] As mentioned above, the displeasure which the leakage of excrement was prevented, \*\*\*\* was prevented, and a rear-face sheet was not torn, and \*\*\*\*\* (ed) by using the rear-face sheet which consists of a - outer layer sheet in the usage \*\*\*\* diaper of this invention while the laminating field was pinpointed is not given, but it becomes possible to offer the usage \*\*\*\* diaper which has sufficient fit nature to a wearer, and has the good touch.

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Drawing selection Representative drawing

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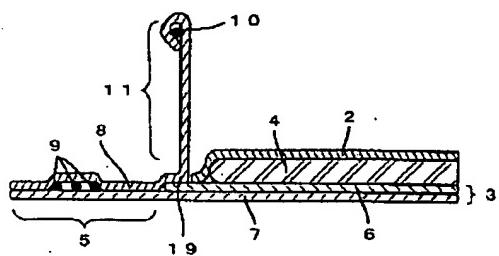
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Drawing selection drawing 2

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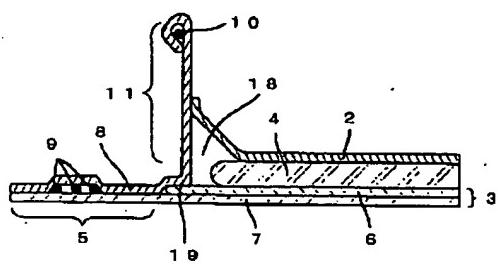


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Drawing selection drawing 3



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